myrmecophilous *Hydnophytum* and the saprophytic *Rafflesia*, with the additional advantage of a botanical laboratory, American homes, and American botanists at its base.

(To be continued.)

RELATIONSHIP BETWEEN ROESTELIA TRANSFORMANS AND R. BOTRYAPITES

By B. O. Dodge

Roestelia transformans is one of the few rusts of this type that have remained unconnected with a *Gymnosporangium* form. Several European works on the fungi contain statements to the effect that *Gymnosporangium Ellisii* is connected with *R. transformans* but no one has reported making such a connection. Fromme has recently shown that *G. Ellisii* and *Aecidium Myricatum* are phases of the same rust.

Farlow, in his work on the "Gymnosporangia of the United States," describes a foliicolous form of *G. biseptatum* as having "all or nearly all two-celled spores." Kern has made a new species of this leaf form under the name *G. fraternum*.

A number of infection experiments with *G. biseptatum* and "*G. fraternum*" have been carried out at Columbia University and a more detailed report of the results obtained will soon be published. It has been found that the leaf form will infect both *Aronia* and *Amelanchier*. The roestelia developing on *Aronia* are very characteristic of *R. transformans*. The basal hypertrophies from which secondary horn-like galls arise, and the long, strongly hygroscopic peridial cells, coarsely warted on their inner face, have been generally regarded as unmistakable characters of this species.

The hypertrophies produced by the infection on the *Amelanchier* are quite unlike those on the *Aronia*. The galls from which the roestelia arise do not ordinarily coalesce and are at first merely flattened, wart-like growths which later elongate somewhat. The roestelia are very different from *R. transformans*, resembling, in fact, *R. Botryapites* as commonly described and distributed in exsiccati.

As *R. transformans* has never been reported on *Amelanchier* certain infections of this host which I obtained in 1914 were open to the question of accidental field contamination of teleutospore material by spores from *G. biseptatum*. Converse inoculations from the roestelia obtained on *Aronia* back to small potted plants of *Chamaecyparis* were made during the summer of 1914 and a considerable number of sori of "*G. fraternum*" appeared on the leaves in February and March. Whether these sori came from the artificial infections or from a perennial mycelium in the cedars, can be determined only by further work.

A large number of infections on both *Aronia* and *Amelanchier* have been obtained with this material this spring. The results agree with those of last year. The change of aecidial host has been followed not only by a different reaction of the host plant to the fungus as shown by the hypertrophies or galls, but also by the transformation of the fungus itself to such an extent that what has been regarded as a characteristically different aecidium is developed.

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REVIEWS

The Scinaia Assemblage*

A phycological paper of unusual systematic and biologic interest is that on "The *Scinaia* Assemblage" recently published by Professor Setchell. *Scinaia*, a genus of red algae of the small family Chaetangiaceae, was first recognized and named nearly a hundred years ago and for a long time was considered to have but a single species, *Scinaia furcellata*, which was described originally from England, but had since been held to occur in the Mediterranean, on our Atlantic coast from southern Massachusetts to Florida, and on the coasts of California, Chile, South Africa, New Zealand, Hawaii, Japan, etc. Later, in part from plants that had been passing as *S. furcellata* and in part from plants so different in habit as to have escaped confusion with it, other species had been described until the genus was currently

* Setchell, William Albert. The *Scinaia* Assemblage. Univ. California Publ. Bot. 6: 79–152. *pl. 10–16*. 7 O 1914.